

**REMARKS**

The Examiner has maintained the restriction requirement of October 4, 2004. Accordingly, applicant has cancelled non-elected claims 1-7, 9-12, 14-18, 24-30, 32-47, 49-52, and 55-57. Applicant reserves the right to file one or more divisional applications directed to the withdrawn subject matter at a later date.

Claim 19 has been amended to convert it to an independent claim, incorporating the limitations of claim 1 and the requirement that the tankyrase homolog protein (THP) or fragment thereof have at least one biological property of tankyrase. Claim 21 has been amended to include the missing word "sequence," as suggested by the Examiner in the January 13, 2005 Office Action. Support for these amendments can be found throughout the application as filed. Claim 23 has been amended to clarify the functional characteristics of the fragment claimed therein.

New claims 58-62 have been added. Support for these claims can be found at, *inter alia*, page 23, lines 5-22 (claims 58 and 59) and lines 23-34 (claim 60); page 5, lines 13-19 (claim 61), and page 16, lines 32-35 (claim 62). No new matter has been added.

**Claim Objections**

Claim 21 is objected to because the word "sequence" was missing from the recitation "...an amino acid at least 90% homologous to SEQ ID NO:5." This objection has been obviated by the amendment discussed above.

Claim 20 is objected to as depending from rejected claim 19, but is apparently considered otherwise allowable by the Examiner. This objection has been obviated by the amendments to claim 19 and the arguments below, in view of which claim 19 is believed to be allowable.

**Section 112 Rejections**

The Examiner has rejected claims 19, 21-23, 48, 53 and 54 under 35 USC §112, first paragraph as containing subject matter that "was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." The Examiner further states that "many functionally unrelated proteins are encompassed within the scope of these claims." Claim 19 has been amended, and new dependent claims 58-60 added, to emphasize that the claimed tankyrase homolog or fragment thereof have at least one biological property of tankyrase, e.g. the ability to ADP-ribosylate a suitable protein target or binding of the ANK domain to TRF1.

Claims 19, 21-23, 48, 53 and 54 have also been rejected under 35 USC §112, first paragraph as lacking enablement. The Examiner asserts that the specification "does not reasonably provide enablement for those polypeptide molecules which have an undefined function or activity" and that the claims "broadly include[e] any isolated polypeptide encoded by an DNA encoding any fragment of a Tankyrase homolog having any activity or function." The claims as amended, however, do not include any polypeptide or fragment structurally homologous to tankyrase without regard to activity or function; they are directed to tankyrase homologs or fragment thereof having at least one biological property of tankyrase, e.g. the ability to ADP-ribosylate a suitable protein target or binding of the ANK domain to TRF1.

In view of these amendments and remarks, reconsideration and withdrawal of the §112, first paragraph rejections is requested.

Sections 102 and 103 Rejections

Claims 19, 23 and 48 have been rejected under 35 USC §102(b) as anticipated by Smith et al., Science 282:1484 (1998) (hereinafter "Smith"). Claims 53 and 54 have been rejected under 35 USC §103(a) as obvious in view of Smith.

Smith relates to the identification and cloning of tankyrase, and the demonstration of its poly(ADP-ribose) polymerase (PARP) activity *in vitro*. The Examiner states that the nucleic acid taught by Smith "has a best local similarity score greater than 80% to the instantly disclosed protein having the amino acid sequence of SEQ ID NO:5." The present claims, however, require homology of greater than 90%. The Examiner also states that the polypeptide of Smith "is encoded by a nucleic acid molecule which comprises a nucleotide sequence which is a fragment of SEQ ID NO:4." The basis for this statement is not clear to Applicant, as Smith does not disclose the nucleotide sequence that encoded the polypeptide sequence of Smith.

Moreover, Smith states at 1484 that the isolated tankyrase cDNA "encoded an open reading frame of 1327 amino acids." (See also note 7, page 1487: "A full-length tankyrase cDNA TT20 containing a 4134-nucleotide (nt) insert was isolated as follows....") SEQ ID NO:4 has only 3498 nucleotides and encodes SEQ ID NO:5, which is only 1166 amino acids long. It is not understood how the *longer* nucleotide sequence mentioned (but not disclosed) by Smith can be considered a "fragment" of the *shorter* nucleotide sequence of the SEQ ID NO:4. In any event, the instant application specifically excludes the nucleotide sequence encoding human tankyrase from the definition of "homologous nucleotide sequence" or variations thereof, and excludes the amino acid sequence encoding human tankyrase from the definition of "homologous amino acid sequence" or variations thereof, as used therein (page 5, lines 13-36, particularly lines 27-32). Thus Smith cannot be said to teach or suggest the polypeptide

described and claimed in claims 19, 23 and 48 (as well as new claims 58-61), and reconsideration and withdrawal of the §102(b) rejection is requested.

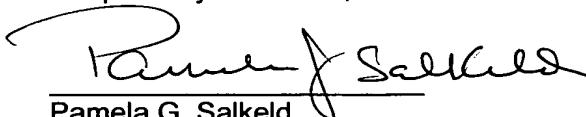
With respect to claims 53 and 54, the Examiner states that "[o]ne of ordinary skill in the art would have been motivated to express the Tankyrase protein as part of a kit comprising and an additional components [sic] as well as instructions as to its use would have been obvious as a diagnostic for the study of DNA damage repair." However, as discussed in the preceeding two paragraphs, the present invention is not directed to tankyrase but to certain tankyrase homologs. Since these tankyrase homologs are neither taught nor suggested by Smith, kits containing these novel, non-obvious polypeptides cannot be obvious. Accordingly, reconsideration and withdrawal of the §103(a) rejection is requested.

In view of the preceding amendments and remarks, reconsideration and withdrawal of the outstanding rejections, and allowance of claims 19-23, 48, 53, 54, and 58-62 pending in this application are respectfully requested. If a telephone interview is deemed to be helpful to expedite the prosecution of the subject application, the Examiner is invited to contact applicant's undersigned attorney at the telephone number below.

The Commissioner is hereby authorized to charge any fees required under 37 C.F.R. §§1.16 and 1.17 or to credit any overpayment to Deposit Account No. 16-1445.

Date: July 12, 2005

Respectfully submitted,

  
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